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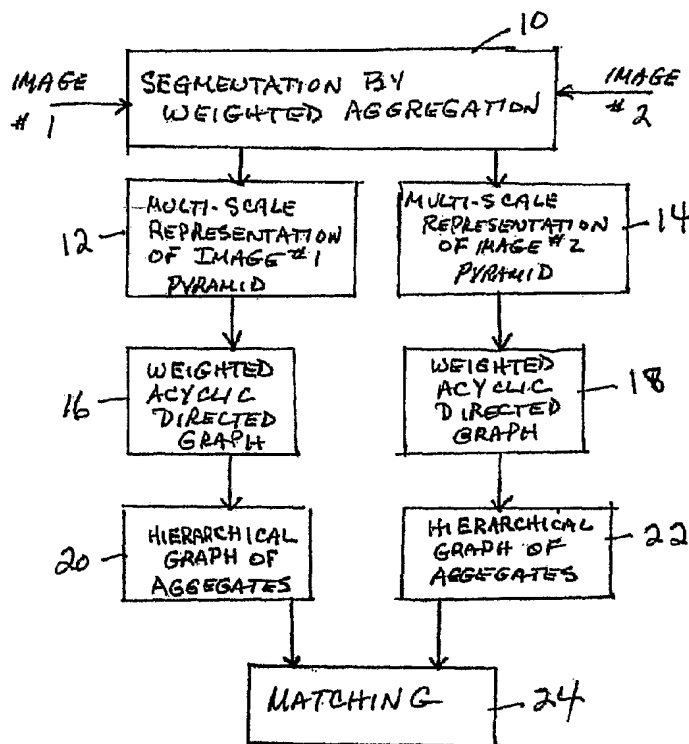
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(54) Title: METHOD AND APPARATUS FOR MATCHING PORTIONS OF INPUT IMAGES



(57) Abstract: A method and apparatus for finding correspondence between portions of two images that first subjects the two images to segmentation by weighted aggregation (10), then constructs directed acyclic graphs (16,18) from the output of the segmentation by weighted aggregation to obtain hierarchical graphs of aggregates (20,22), and finally applies a maximally weighted subgraph isomorphism to the hierarchical graphs of aggregates to find matches between them (24). Two algorithms are described; one seeks a one-to-one matching between regions, and the other computes a soft matching, in which is an aggregate may have more than one corresponding aggregate. A method and apparatus for image segmentation based on motion cues. Motion provides a strong cue for segmentation. The method begins with local, ambiguous optical flow measurements. It uses a process of aggregation to resolve the ambiguities and reach reliable estimates of the motion. In addition, as the process of aggregation proceeds and larger aggregates are identified, it employs a progressively more complex model to describe the motion. In particular, the method proceeds by recovering translational motion at fine levels, through affine transformation at intermediate levels, to 3D motion (described by a fundamental matrix) at the coarsest levels. Finally, the method is integrated with a segmentation method that uses intensity cues. The utility of the method is demonstrated on both random

dot and real motion sequences.



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